WEST Search History

Hide Items Restore Clear Cancel

DATE: Tuesday, September 28, 2004

Hide?	Set Name	Query	Hit Count
		DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ	
☐	L30	6005389 and ((horizontal$3 or vertical$3 or transvers$5 or longitud$7 or parallel or orthogonal$3 or perpendicular$3) with (resistiv$5))	3
☐	L29	L28 not L26	2
☐	L28	L27 and (Waxman or Smits or Thomas or Stieber)	10
☐	L27	L22 and ((magnetic adj resonance) or MRI or NMR)	46
☐	L26	L25 and ((magnetic adj resonance) or MRI or NMR)	8
☐	L25	L24 and (coarse or fine)	17
☐	L24	L23 and (Waxman or Smits or Thomas or Stieber)	26
☐	L23	L22 and (bulk or content)	185
☐	L22	L21 and (estima$6 or approximat$6)	276
☐	L21	L20 and (induct$5)	302
☐	L20	L19 and (model$4 or simulat$6)	685
☐	L19	L18 and (density or porosity or permeability or bvi or irreducible or bound)	1723
☐	L18	L17 and (formation or wellbore or "well bore" or well-bore or borehole or bore-hole or "bore hole" or earth or petrophysical$3 or petro-physical$3 or "petro physical$3" or sand or clay or shale or grain)	2774
☐	L17	L16 and (water or fluid$4 or liquid$4 or "h20" or oil)	5295
☐	L16	((horizontal$3 or vertical$3 or transvers$5 or longitud$7 or parallel or orthogonal$3 or perpendicular$3) with (resistiv$5))	16136
☐	L15	L14 and ((horizontal$3 or vertical$3 or transvers$5 or longitud$7) with (resistiv$5))	3
☐	L14	6255819	9
☐	L13	L12 and ((magnetic adj resonance) or MRI or NMR)	8
☐	L12	L11 and ((horizontal$3 or vertical$3 or transvers$5 or longitud$7) with (resistiv$5))	9
☐	L11	L10 and (bulk or content)	140
☐	L10	L9 and (Waxman or Smits or Thomas or Stieber)	151
☐	L9	L8 and (model$4 or simulat$6)	1073
☐	L8	L7 and (coarse or fine)	1831
☐	L7	L6 and (density or porosity or permeability or bvi or irreducible or bound)	4174
☐	L6	L5 and (estima$6 or approximat$6)	5021
☐	L5	L4 and (induct$5)	6587

☐	L4	L3 and (formation or wellbore or "well bore" or well-bore or borehole or bore-hole or "bore hole" or earth or petrophysical$3 or petro-physical$3 or "petro physical$3" or sand or clay or shale or grain)	26091
☐	L3	L2 and (water or fluid$4 or liquid$4 or "h20" or oil)	44395
☐	L2	L1 and (resistiv$5)	83710
☐	L1	(horizontal$3 or vertical$3 or transvers$5 or longitud$7)	3941751

END OF SEARCH HISTORY

Hit List

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Search Results - Record(s) 1 through 3 of 3 returned.

☐ 1. Document ID: US 6686736 B2

Using default format because multiple data bases are involved.

L15: Entry 1 of 3 File: USPT Feb 3, 2004

US-PAT-NO: 6686736
DOCUMENT-IDENTIFIER: US 6686736 B2

TITLE: Combined characterization and inversion of reservoir parameters from nuclear, NMR and resistivity measurements

DATE-ISSUED: February 3, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Schoen; Juergen S.	Leoben			AT
Fanini; Otto N.	Houston	TX		
Georgi; Daniel	Houston	TX		

US-CL-CURRENT: 324/303

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

☐ 2. Document ID: US 6493632 B1

L15: Entry 2 of 3 File: USPT Dec 10, 2002

US-PAT-NO: 6493632
DOCUMENT-IDENTIFIER: US 6493632 B1

TITLE: Water saturation and sand fraction determination from borehole resistivity imaging tool, transverse induction logging and a tensorial water saturation model

DATE-ISSUED: December 10, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mollison; Richard A.	Tomball	TX		
Schoen; Juergen S.	Leoben			AT
Fanini; Otto N.	Houston	TX		
Kriegshauser; Berthold	Houston	TX		
Pavlovic; Milomir	Houston	TX		

US-CL-CURRENT: 702/2; 703/10

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw. D

3. Document ID: US 6255819 B1

L15: Entry 3 of 3 File: USPT Jul 3, 2001

US-PAT-NO: 6255819
DOCUMENT-IDENTIFIER: US 6255819 B1

TITLE: System and method for geologically-enhanced magnetic resonance imaging logs

DATE-ISSUED: July 3, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Day; Peter Ian	Houston	TX		
Tutunji; Tarek A.	Houston	TX		
Hagiwara; Teruhiko	Houston	TX		

US-CL-CURRENT: 324/303; 324/300

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw. D

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Term	Documents
HORIZONTAL$3	0
HORIZONTAL	1382457
HORIZONTALA	7
HORIZONTALAL	5
HORIZONTALALY	1
HORIZONTALAND	23
HORIZONTALARM	1
HORIZONTALB	2
HORIZONTALBAR	1
HORIZONTALC	1
HORIZONTALCCD	1
(L14 AND ((HORIZONTAL$3 OR VERTICAL$3 OR TRANSVERS$5 OR LONGITUD$7) WITH (RESISTIV$5))).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	3

There are more results than shown above. Click here to view the entire set.

L15: Entry 2 of 3 File: USPT Dec 10, 2002

DOCUMENT-IDENTIFIER: US 6493632 B1
TITLE: Water saturation and sand fraction determination from borehole resistivity imaging tool, transverse induction logging and a tensorial water saturation model

Brief Summary Text (15):
U.S. Pat. No. 5,656,930 issued to Hagiwara discloses a method of determining the horizontal resistivity, the vertical resistivity, and the anisotropy coefficient of a subterranean formation by means of an induction type logging tool positioned in a deviated borehole within the subterranean formation. In a preferred implementation, the induction type logging tool is first calibrated to determine a proportionality constant. A predetermined relationship between the proportionality constant, the phase shift derived resistivity, the attenuation derived resistivity, the horizontal resistivity, the vertical resistivity, and the anisotropy coefficient is then generated and stored in the memory of a programmed central processing unit. During an induction logging operation, the phase shift derived resistivity and attenuation derived resistivity are then received and processed by the programmed central processing unit in accordance with the predetermined relationship to generate the horizontal resistivity, the vertical resistivity, and the anisotropy coefficient. These measured values of horizontal and vertical resistivities when combined with a predetermined relationship between the horizontal resistivity, the vertical resistivity, the net/gross ratio, and the ratio of the sand layer resistivity to the shale layer resistivity make it possible to obtain a net/gross ratio. However, there are many laminated reservoirs in which the sands may include dispersed shales. Interpretation of formation water saturation in such reservoirs can be in error if the combined effects of laminations, dispersed shales within the sand, and possible intrinsic anisotropy of the shales is not considered.

Drawing Description Text (7):
FIG. 5 gives the steps of one subprocess of an embodiment of the invention for determination of water saturation from measured values of vertical an horizontal resistivities.

Detailed Description Text (10):
With flat dips, the sinusoids have essentially zero amplitude. In one aspect of the present invention, the resistivity measurements are averaged circumferentially and vertically within each identified layer to give an average resistivity measurement for each layer identified above. Once this is done, the subsurface may be characterized by a number of plane layers, each of which has a constant resistivity. With the resolution of the button-electrode tool, these layers may range in thickness from a few millimeters to a few centimeters.

Detailed Description Text (13):
As would be known to those versed in the art, a finely laminated sequence of layers having different resistivities exhibits a transverse isotropy on a larger scale where the wavelength of the electromagnetic wave is much greater than the layer thickness. This condition is easily satisfied even for propagation resistivity tools that, e.g., operate at a frequency of 2 MHz (with a wavelength .lambda..apprxeq.6 meters); for induction logging tools that have frequencies of the order of 50 kHz to 200 kHz, the wavelengths are even longer. For such interrogating frequencies, the layered medium is characterized by a horizontal

resistivity R.sub.h * and a vertical resistivity R.sub.v * given by: ##EQU3##

Detailed Description Text (17):
Referring again to FIG. 5, an induction or wave propagation tool is used to make measurements of the vertical and horizontal resistivity of the earth formations 104. For example, U.S. Pat. No. 5,781,436 to Forgang et al , the contents of which are fully incorporated here by reference, discloses a method an apparatus for making measurements of horizontal and vertical resistivities of a transversely isotropic formation.

Detailed Description Text (18):
The method disclosed by Forgang et al comprises selectively passing an alternating current through transmitter coils inserted into the wellbore. Each of the transmitter coils has a magnetic moment direction different from the magnetic moment direction of the other ones of the transmitter coils. The alternating current includes a first and a second frequency. The amplitude at the first frequency has a predetermined relationship to the amplitude at the second frequency. The relationship corresponds to the first and the second frequencies. The method includes selectively receiving voltages induced in a receiver coil having a sensitive direction substantially parallel to the axis of the corresponding transmitter coil through which the alternating current is passed. A difference in magnitudes between a component of the received voltage at the first frequency and a component of the voltage at the second frequency is measured, and conductivity is calculated from the difference in magnitudes of the components of the received voltage at the two frequencies. The Forgang patent is cited only by way of example of an induction device for obtaining horizontal and vertical resistivities of a formation and there are other teachings on obtaining these properties of subterranean formation.

Detailed Description Text (19):
An example of a propagation resistivity tool for making measurements of horizontal and vertical resistivities is described by Rosthal (U.S. Pat. No. 5,329,448) discloses a method for determining the horizontal and vertical conductivities from a propagation logging device. The method assumes that .theta., the angle between the borehole axis and the normal to the bedding plane, is known. Conductivity estimates are obtained by two methods. The first method measures the attenuation of the amplitude of the received signal between two receivers and derives a first estimate of conductivity from this attenuation. The second method measures the phase difference between the received signals at two receivers and derives a second estimate of conductivity from this phase shift. Two estimates are used to give the starting estimate of a conductivity model and based on this model, an attenuation and a phase shift for the two receivers are calculated. An iterative scheme is then used to update the initial conductivity model until a good match is obtained between the model output and the actual measured attenuation and phase shift.

Detailed Description Text (20):
The horizontal and vertical resistivities obtained at 104 are then inverted to give a layered model of resistivities 106. U.S. Pat. No. 5,854,991 issued to Gupta et al, the contents of which are fully incorporated here by reference, discloses such a method for inversion of transverse electromagnetic induction well logging measurements. Co-pending U.S. patent application Ser. No: 09/052,462 having the same assignee as the present application, and the contents of which are fully incorporated herein by reference, discloses a method of inversion of data from propagation resistivity tools. The '462 application also discloses an ambiguity in the inversion of the resistivity measurements and a method for dealing with the ambiguity.

Detailed Description Text (21):
In the inversion method used by Gupta et al, model is generated of the axial distribution of the horizontal and vertical conductivities, from induction signals

acquired by the instrument using two-frequency alternating current. The model is generated by calculating an initial estimate of the conductivity distribution and axially inverting the estimate with respect to the measurements made using the two-frequency alternating current. Shoulder correction is applied to measurements made by the instrument using single-frequency alternating current. An estimate of the radial distribution of the conductivities is generated from the shoulder corrected induction signals acquired using the single- frequency alternating current. A 2-dimensional model is made of the conductivity distribution from the model of axial distribution and from the estimate of radial distribution. In one embodiment of the present invention, the initial model for the inversion is based at least in part on data acquired by the resistivity imaging tool 105. In particular, while the resistivity imaging tool may need to be normalized in some way to correct the resistivity measurements, the layer boundaries determined by the resistivity imaging tool serve as a good starting point for the layers used in the inversion of the transverse induction logging tool data. In another embodiment of the invention, the initial layers for the model may be determined from other high resolution logging tools, such as a Laterolog.TM. or a gamma ray logging too.

Detailed Description Text (23):
Once the inversion is performed, the horizontal and vertical resistivities obtained therefrom are analyzed using a petrophysical model 108. In one embodiment of the invention, the values of vertical and horizontal resistivity thus obtained are related to the fluid content and fractional volume of pore spaces in subsurface layers by expressions such as the following derived from the Patchett-Herrick water saturation model for shaly sand formations: ##EQU4##

Detailed Description Text (24):
gives the horizontal resistivity in the reservoir-rock (non-shale) layers of the formation. F*.sub.sd,h in equation (5) represents the formation resistivity factor for the horizontal resistivity, and B.multidot.Q.sub.v is a factor related to the resistivity of "dispersed" shale (shale located within the pore spaces of the reservoir rock). V.sub.sh represents the fractional volume within the earth formation of interest of the layers of shale ("laminated shale volume"). The other terms represent the same quantities as described in the Background section herein. See for example, J. G. Patchett et al, "Introduction Section III. Model Evaluation", SPWLA Shaly Sand Reprint Volume, Society of Professional Well Log Analysts, Houston, Tex. (1982) and M. H. Waxman et al, "Electrical Conductivities in Oil Bearing Shaly Sands", SPE Journal, vol. 8, no. 2, pp. 107-122, Society of Petroleum Engineers, Richardson Tex., (1968). The porosity can be determined by any one of a number of well known measurements, such as acoustic travel time, neutron porosity, bulk density, or combinations of measurements such as these as is well known in the art. The porosity measurements just described are meant only as examples of measurements used to determine the porosity and are not meant to limit the invention in any way.

Detailed Description Text (25):
Similarly, for the vertical resistivity, Rt.sub.ver, an expression relating the vertical resistivity to the water saturation S.sub.w is: ##EQU5##

Detailed Description Text (27):
In one embodiment of the invention, it has been determined that whatever the values of resistivity in the "horizontal" and "vertical" directions, the water saturation, S.sub.w, must be equal whether determined from the vertical or horizontal resistivity measurements. A set of relationships can be developed, where a simplifying variable A.sub.w can be defined as: ##EQU6##

Detailed Description Text (29):
where .lambda..sub.sh represents an "anisotropy factor" relating the vertical and horizontal conductivities (or resistivities) in the same formation.

Detailed Description Text (32):
Turning now to FIG. 5, a flow chart of the subprocess for determination of water saturation according to one embodiment of the invention using the Patchett-Herrick model is depicted. Using a logging tool such as disclosed in the '436 patent measurements are made within a borehole. The logging tool makes measurements of induction signals along and perpendicular to the axis of the instrument as well as cross-component signals. As described above, these measurements are processed to give a "horizontal"and "vertical" resistivity 220 at each depth in the borehole. A measurement of the connate water resistivity R.sub.w is obtained 240. Using the value of R.sub.w and a measured value 230 of porosity .PHI. and V.sub.sh, the quantities B and Q.sub.v are determined 260 using a relationship given by Juhasz. These, together with the values of .PHI. enable the determination of F.sub.horz and F.sub.vert using the Waxman-Smit and Patcher-Herrick equations. These are substituted in equation (9) along with the measured values of R.sub.tvert and R.sub.thorz and an assumed anisotropy factor .lambda..sub.sh 210 and solved to give the value of A.sub.w 250. By substituting this value of A.sub.w in equation (5) along with values for B, Q.sub.v and R.sub.w, the water saturation S.sub.w is obtained 270.

US Reference Patent Number (13):
6255819

US Reference Group (13):
6255819 20010700 Day et al. 324/303

CLAIMS:

1. A method of determining a parameter of interest of a subsurface formation containing a sand and a shale surrounding a borehole, the method comprising: (a) conveying an electromagnetic logging tool into the borehole and using at least one transmitter and one receiver on the tool to obtain measurements indicative of a horizontal and vertical resistivity of the formation; (b) obtaining a value for a total porosity of said formation, a fractional volume of the shale in said formation, and a resistivity of the shale in the formation, (c) using a processor for processing said measurements for obtaining a vertical and horizontal resistivity of the formation; (d) using a tensor petrophysical model in a processor for obtaining from said vertical and horizontal resistivities, said obtained total porosity, said obtained fractional shale volume and said obtained shale resistivity, the parameter of interest wherein said tensor petrophysical model comprises a laminar isotropic shale and a laminar sand that is at least one of (i) a clean sand, and, (ii) a sand having dispersed shale therein.

7. The method of claim 1 wherein obtaining a vertical and horizontal resistivity of the formation further comprises using the tensor petrophysical model for obtaining a laminar shale volume, a laminar sand volume, and a laminar sand conductivity.

11. The method of claim 1 further comprising using a sensor on the logging tool for obtaining an orientation of the tool relative to the subsurface formations and using the determined orientation in obtaining said horizontal resistivity and said vertical resistivity.

12. The method of claim 1 further comprises performing an inversion of the obtained vertical and horizontal resistivities of the formation.

13. The method of claim 12 wherein performing an inversion further comprises: (i) defining a model including a plurality of layers, each of said plurality of layers having a thickness, a horizontal resistivity and a vertical resistivity; and (ii) iteratively updating the model based on a difference between an output of the model and said obtained horizontal and vertical resistivities.

19. A method for determining hydrocarbon saturation of an earth formation comprising layers of shale interleaved with layers of reservoir rock, the method comprising: (a) determining a vertical resistivity of said earth formation; (b) determining a horizontal resistivity of said earth formation; (c) determining a porosity of said layers of reservoir rock; and (d) determining a hydrocarbon saturation independent of resistivity of said layers of shale by combining said vertical resistivity, said porosity and said horizontal resistivity.

22. The method as defined in claim 19 wherein said steps of measuring said vertical and horizontal resistivity comprise: (a) measuring induction signals along an axis of a wellbore drilled through said earth formations; (b) measuring induction signals perpendicular to said wellbore axis; (c) measuring cross-component induction signals; and (d) determining said vertical and said horizontal resistivities using said induction signals measured along and perpendicular to said axis and said cross-component induction signals.

23. A method of obtaining a porosity and water saturation of at least one sand layer in a reservoir comprising laminated sands and shales in a subsurface formation surrounding a borehole, the method comprising: (a) conveying an electromagnetic logging tool into the borehole for obtaining measurements indicative of a horizontal and vertical resistivity of the formation; (b) obtaining a value for a total porosity of said formation, a fractional volume of the shale in said formation, and a resistivity of the shale in the formation; (c) using a processor for processing said measurements and obtaining therefrom a layered model of vertical and horizontal resistivities of the formation; (d) using a petrophysical model for determining from the layered model of vertical and horizontal resistivities the porosity and water saturation of said sand.

24. The method of claim 23 wherein obtaining a resistivity of shale further comprises conveying a galvanic tool having button electrodes thereon into the borehole and averaging in a vertical direction and in a horizontal direction measurements made by said button electrodes.

28. A method of determining a parameter of interest of a subsurface formation containing a sand and a shale surrounding a borehole, said subsurface formation having a total porosity, a fractional volume of the shale in said formation, a resistivity of the shale, a vertical resistivity and a horizontal resistivity; the method comprising using a tensor petrophysical model in a processor for obtaining from said vertical and horizontal resistivities, said obtained total porosity, said obtained fractional shale volume and said obtained shale resistivity, the parameter of interest wherein said tensor petrophysical model comprises a laminar isotropic shale and a laminar sand that is at least one of (i) a clean sand, and, (ii) a sand having dispersed shale therein.

Previous Doc Next Doc Go to Doc#

L15: Entry 3 of 3 File: USPT Jul 3, 2001

DOCUMENT-IDENTIFIER: US 6255819 B1
TITLE: System and method for geologically-enhanced magnetic resonance imaging logs

Brief Summary Text (9):
For example, many of the low resistivity and low contrast pay sands are known to be thinly laminated sand/silt or shale sequences. Most commercially available resistivity logging tools have coarse vertical resolution and fail to read resistivity of individual sand or shale layers. Instead, they read only the averaged horizontal resistivity that is low and dominated by the high conductivity of silt and shale layers, although individual sand layers can be highly resistive. As a result, the low resistivity of the layer sequence may be incorrectly interpreted as poor hydrocarbon potential of the formation.

Hit List

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Search Results - Record(s) 1 through 2 of 2 returned.

1. Document ID: US 20040010373 A1

Using default format because multiple data bases are involved.

L29: Entry 1 of 2 File: PGPB Jan 15, 2004

PGPUB-DOCUMENT-NUMBER: 20040010373
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040010373 A1

TITLE: INTELLIGENT DIAGNOSIS OF ENVIRONMENTAL INFLUENCE ON WELL LOGS WITH MODEL-BASED INVERSION

PUBLICATION-DATE: January 15, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Smits, Jan W.	Sugar Land	TX	US	
Wu, Peter T.	Sugar Land	TX	US	
Li, Qiming	Sugar Land	TX	US	
Liu, ChengBing	Houston	TX	US	

US-CL-CURRENT: 702/6; 703/10

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KMC | Draw De

2. Document ID: US 6005389 A

L29: Entry 2 of 2 File: USPT Dec 21, 1999

US-PAT-NO: 6005389
DOCUMENT-IDENTIFIER: US 6005389 A

TITLE: Pulse sequences and interpretation techniques for NMR measurements

DATE-ISSUED: December 21, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Prammer; Manfred G.	Downingtown	PA		

US-CL-CURRENT: 324/303; 324/300

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Term	Documents
(28 NOT 26).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	2
(L28 NOT L26).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	2

Display Format: - Change Format

Previous Page Next Page Go to Doc#

Hit List

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Search Results - Record(s) 1 through 3 of 3 returned.

1. Document ID: US 6337568 B1

Using default format because multiple data bases are involved.

L30: Entry 1 of 3 File: USPT Jan 8, 2002

US-PAT-NO: 6337568
DOCUMENT-IDENTIFIER: US 6337568 B1

TITLE: System and method for enhanced vertical resolution magnetic resonance imaging logs

DATE-ISSUED: January 8, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Tutunji; Tarek A.	Houston	TX	77082	
Hagiwara; Teruhiko	Houston	TX	77025	
Day; Peter Ian	Houston	TX	77030	

US-CL-CURRENT: 324/303; 324/300

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KWIC | Draw De

2. Document ID: US 6255819 B1

L30: Entry 2 of 3 File: USPT Jul 3, 2001

US-PAT-NO: 6255819
DOCUMENT-IDENTIFIER: US 6255819 B1

TITLE: System and method for geologically-enhanced magnetic resonance imaging logs

DATE-ISSUED: July 3, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Day; Peter Ian	Houston	TX		
Tutunji; Tarek A.	Houston	TX		
Hagiwara; Teruhiko	Houston	TX		

US-CL-CURRENT: 324/303; 324/300

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KMC | Draw De

3. Document ID: US 6005389 A

L30: Entry 3 of 3 File: USPT Dec 21, 1999

US-PAT-NO: 6005389
DOCUMENT-IDENTIFIER: US 6005389 A

TITLE: Pulse sequences and interpretation techniques for NMR measurements

DATE-ISSUED: December 21, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Prammer; Manfred G.	Downingtown	PA		

US-CL-CURRENT: 324/303; 324/300

Full | Title | Citation | Front | Review | Classification | Date | Reference | | | Claims | KMC | Draw De

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Term	Documents
"6005389"	41
6005389S	0
PARALLEL	2382796
PARALLELS	11676
HORIZONTAL$3	0
HORIZONTAL	189577
HORIZONTALAL	3
HORIZONTALAND	3
HORIZONTALCCD	1
HORIZONTALE	2
HORIZONTALER	1
(6005389 AND ((HORIZONTAL$3 OR VERTICAL$3 OR TRANSVERS$5 OR LONGITUD$7 OR PARALLEL OR ORTHOGONAL$3 OR PERPENDICULAR$3) WITH (RESISTIV$5))).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	3

There are more results than shown above. Click here to view the entire set.

Display Format: - Change Format

Previous Page Next Page Go to Doc#